

## CLAIMS

1. A fuel supplier placed in a fuel supply system of a fuel cell, comprising:
  - a fuel vessel; and
  - a permeation control film through which a supplementary
- 5 fuel contained in said fuel vessel is restrictively transmitted and transferred to said fuel supply system.
2. The fuel supplier as claimed in Claim 1,
  - wherein said permeation control film restricts the amount of transmission of said supplementary fuel based on the fuel concentration of a liquid fuel in said fuel supply system.
3. The fuel supplier as claimed in Claim 1 or 2,
  - wherein said permeation control film changes its shape depending on the concentration of said liquid fuel such that the amount of transmission of said supplementary fuel is changed.
4. The fuel supplier as claimed in Claim 3,
  - wherein said film shrinks and expands depending on the concentration of said liquid fuel so as to change its open area ratio.
5. The fuel supplier as claimed in any one of Claims 1 to 4,
  - wherein said permeation control film comprises a fuel permeable film that transmits said supplementary fuel and a

shutter member that is placed on said fuel permeable film and  
5 controls an exposed area of said fuel permeable film.

6. The fuel supplier as claimed in Claim 5,  
wherein said shutter member restricts the amount of  
transmission of said supplementary fuel based on the fuel  
concentration of said liquid fuel in said fuel supply system.

7. The fuel supplier as claimed in Claim 5 or 6,  
wherein said shutter member includes an elastic film  
having a cut portion, and a surface of said elastic film is  
allowed to expand and contract such that the cut portion changes  
5 its shape and that the exposed area of said fuel permeable film  
is controlled.

8. The fuel supplier as claimed in Claim 5 or 6, further  
comprising a shutter control member that allows said shutter  
member to slide on the surface of said fuel permeable film such  
that the exposed area of said fuel permeable film is controlled.

9. The fuel supplier as claimed in any one of Claims 5 to 8,  
wherein said fuel permeable film restricts the amount of  
transmission of said liquid fuel based on the fuel concentration  
of said liquid fuel in said fuel supply system.

10. The fuel supplier as claimed in any one of Claims 1 to 9,  
further comprising a fuel supply unit that is placed adjacent to

said fuel vessel through said permeation control film and  
configured so as to change its volume depending on its internal  
5 pressure.

11. A fuel cell, comprising:
- a solid electrolyte membrane;
  - a fuel electrode and an oxidant electrode placed on said  
solid electrolyte membrane; and
  - 5 a fuel supply system that supplies a fuel to said fuel  
electrode,
- wherein said fuel supply system has the fuel supplier as  
claimed in any one of Claims 1 to 10.

12. The fuel cell as claimed in Claim 11, further comprising  
a gas duct through which a gas produced at said fuel electrode  
is guided to said fuel vessel.